Phytologia (December 1990) 69(6):416-419.

VARIATION IN *ERIGERON SOCORRENSIS* (ASTERACEAE: ASTEREAE)

Guy L. Nesom

Department of Botany, University of Texas, Austin, Texas 78713 U.S.A.

ABSTRACT

Erigeron socorrensis I.M. Johnston, endemic to Isla Socorro of Colima, México, apparently comprises two morphological types. They differ in vestiture of the stems and leaves, and appear to be segregated in distribution on the island, but all plants are recognized as a single species until field study might provide further insight regarding the genetic basis for the variation.

KEY WORDS: *Erigeron*, Asteraceae, Astereae, Islas Revillagigedos, México

Each of the two largest islands of the Revillagigedo Islands of Colima, México, has produced an endemic species of *Erigeron, E. socorrensis* I.M. Johnston on Isla Soccoro and *E. crenatus* Eastwood on Isla San Benedicto. Both are suffrutescent perennials with heads in loose corymbs produced above the leaves, which are clustered on the upper parts of the stems. *Erigeron socorrensis* differs from *E. crenatus* in its narrower leaves, smaller heads arranged in more diffuse capitulescences, and fewer ray flowers with longer ligules. Johnston (1931) positioned these species in *Erigeron* sect. *Coenotus*, a group now recognized as *Conyza* (see Nesom 1989a). In contrast, Nesom (1989b) hypothesized that both species are members of *Erigeron* sect. *Cincinnactis* Nesom, which is a group primarily of the Mexican mainland. The two species are certainly related as sister taxa, although it is not clear which other species of the section they are most closely related to.

Erigeron crenatus is relatively homogeneous, but based on the available material of *Erigeron* from Isla Socorro, two groups of plants can be identified with respect to the amount, length, and orientation of pubescence. Typical *E. socorrensis* has stems and leaves with thin, closely appressed, short (0.1-0.5 mm long) trichomes, while the stems and leaves of the others are much more densely pubescent with thicker, erect, and longer (0.4-0.8 mm long) trichomes. The leaves of the latter plants are pilose, and because of the density of their pubescence they appear gray-green in contrast to the darker green (of the

relatively unobscured epidermis) of the typical plants. Further, the trichomes of the atypical plants tend to have a thick, orange base, while those of typical *E. socorrensis* are thinner based and whitish. The two groups are morphologically distinct, but they do not appear to be separated by characters other than vestiture.

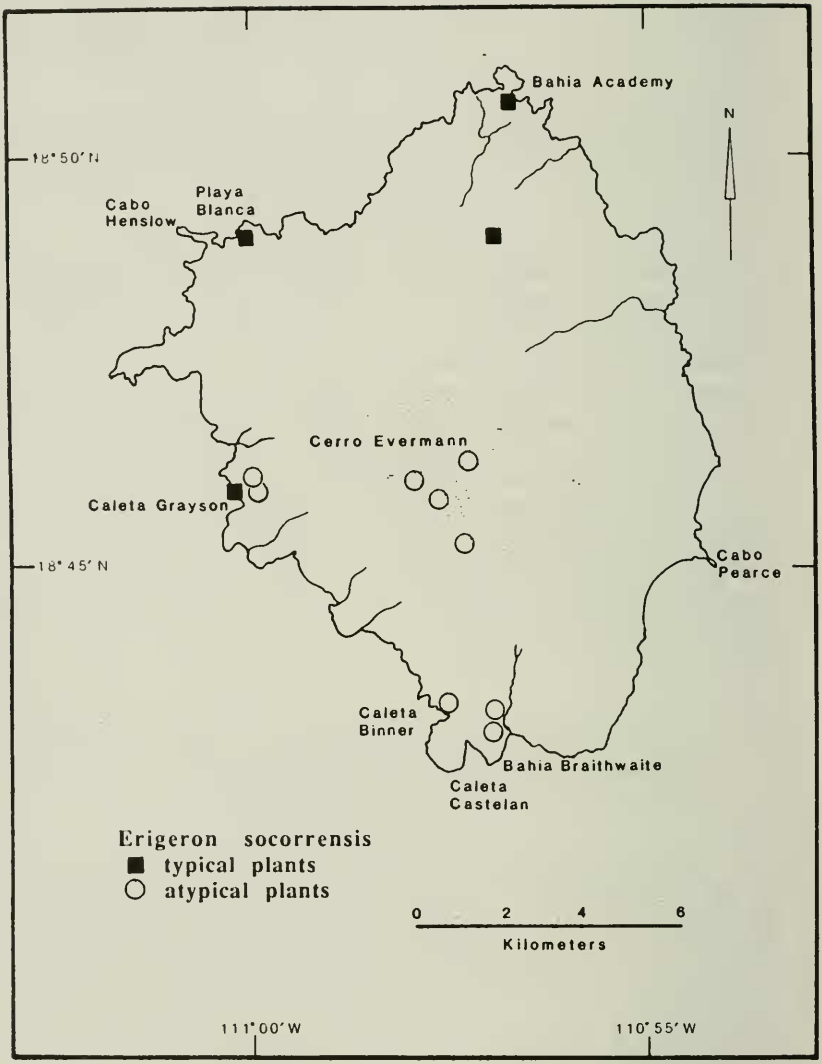
All collections I have seen of *Erigeron* from Isla Socorro can be identified as one or the other of the two morphological forms. Plants of the typical form have been collected less frequently than the others and appear to be restricted to the northern and northwestern parts of the island (Map 1), where, except for *Moran 5863*, they occur near the shore just above sea level.

In preliminary studies of Mexican *Erigeron*, I tentatively regarded plants of the atypical form on Isla Socorro as a separate species and annotated some of them with the name "*Erigeron socorroalis*." At this point, however, I am deterred for two reasons from formalizing such a proposal. First, although *Erigeron* is one of only three genera with more than a single endemic species on this small group of islands, it seems unlikely that speciation has occurred on such a small island with relatively little ecological diversity, no obvious barriers to gene exchange, and a relatively close proximity to the mainland. Levin & Moran (1989) have noted that although the level of endemism is high, evolutionary radiation has not occurred in the Socorro flora. Second, there is the uninvestigated possibility that the difference in vestiture may arise as a phenotypic response to ecological factors. Accordingly, I treat the taxonomy of these plants as follows, with the collections of the typical and atypical plants cited in separate paragraphs.

Erigeron socorrensis Brandegee, Erythea 7:4. 1898. TYPE: MÉXICO. Colima: Revillagigedo Islands, Isla Socorro, [exact locality not recorded, May 1897], *A.W. Anthony 376* (HOLOTYPE: UC!; Isotypes: DS-2 sheets!, ENCB photo!, GH!, UC!, US-3 sheets!).

Additional collections examined (typical): MÉXICO. Colima: Revillagigedo Islands, Isla Socorro: Playa Blanca, near shore, N side of island, 5 m, 22 Mar 1967, *Felger 15791* (TEX); dry slopes, north anchorage, 29 Mar 1932, *Howell 8451* (CAS, DS); dry, brush-covered ridge about midway between Mt. Evermann and Academy Bay, ca. 450 m, 15 Mar 1957, *Moran 5863* (DS); Grayson's Cove, common on sea cliff, ca. 5 m, 18 Mar 1957, *Moran 5918* (DS-2 sheets, DUKE, GH, LL, MEXU, NY, UC, US).

Additional collections examined (atypical): MÉXICO. Colima: Revillagigedo Islands, Isla Socorro: [exact locality not recorded], 27 May-3 Jul 1903, *Barkelew 189* (GH, NY, UC, US) and *Barkelew 214* (GH-2 sheets, NY, UC, US); S slopes of Mt. Evermann, 2800-3200 ft., 15 Apr 1955, *Dawson 13280* (UC); slopes of volcanic cone within 50 m of summit, Evermann Peak, 1000+ m, 21 Mar 1967, *Felger 15762* (TEX); S side of Mt. Evermann, 800 m, 21



Map 1. Distribution of *Erigeron socorrensis* on Isla Socorro. Base map modified from Levin and Moran (1989).

Mar 1967, *Felger 15835* (TEX); mesa, W side of Benner's Cove, Braithwaite Bay, 28 Mar 1932, *Howell 8426* (CAS, DS, NY); Grayson's Cove, 4 May 1925, *Mason 1618* (CAS, DS, GH, NY, UC, US); sur hacia 800 m en rocas, 16 Jan 1958, *Miranda 8714* (MEXU); vicinity of Benner's Cove, occasional on rocky wall of arroyo, 7 Mar 1957, *Moran 5732* (DS, UC); Cerro de los Dientes, S of Mt. Evermann, ca. 700 m, dominants *Dodonaea, Lepechinia, Acalypha*, 11 Mar 1957, *Moran 5785* (DS, UC); N slope above Grayson's Cove, 200 m, 10 Apr 1978, *Moran 25455* (TEX); [exact locality not recorded], 1933, *Patino s.n.* (MEXU-2 sheets); los cerros en [suelo] muy pedregoso, 300 m, 4 May 1925, *Solis 26* (MEXU, US); [exact locality not recorded], Mar 1889, *Townsend s.n.* (GH, NY, US); [exact locality not recorded], 1600 m, 17 Mar 1969, *Villarreal de Puga 2805* (ENCB).

ACKNOWLEDGMENTS

I thank Dr. B.L. Turner and Dr. D.R. Windler for their comments on the manuscript. Specimens cited have been studied during visits to some of the herbaria involved and through loans from others.

LITERATURE CITED

Johnston, I.M. 1931. The flora of the Revillagigedo Islands. Proc. California Acad. Sci., ser. 4, 20:9-104.

Levin, G.A. & R. Moran. 1989. *The Vascular Flora of Isla Socorro, Mexico.* San Diego Soc. Nat. Hist. Mem. 16:1-71.

Nesom, G.L. 1989a. Further definition of *Conyza* (Compositae: Astereae). Phytologia 68(3):229-233.

_____. 1989b. Infrageneric taxonomy of New World *Erigeron* (Compositae: Astereae). Phytologia 67:67-93.